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Conference Abstract

FAIR Principles and TDWG Standards: The case of morphological description of taxa and specimens

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Abstract

Sharing data is crucial in biodiversity research as well as in all scientific domains. Biodiversity Information Standards (TDWG) validates and makes available a set of standards to facilitate the sharing of biodiversity data. Of the 23 standards listed in alphabetical order, each has a status, a category, and a short description. But these standards are designed for very different purposes, which we will discuss by linking them to the FAIR principles (Findable, Accessible, Interoperable, and Reusable) .

The FAIR principles (Wilkinson et al. 2016) focus on the ability of machines to automatically find and use the digital data. It is therefore crucial that software for editing, acquiring and using data, shares defined standards that are made available to all. TDWG has been working in this direction for over 30 years. Pioneers in biodiversity informatics, such as Richard Pankhust (Pankhurst 1970), Mike Dallwitz (Dallwitz 1974, Dallwitz 1980) and Jacques Lebbe (Lebbe et al. 1987) worked specifically on taxon identification with computers and how to represent morphological descriptions of taxa and specimens.

Some TDWG standards, such as ABCD (Access to Biological Collection Data; Access to Biological Collections Data Task Group 2005), TCS (Taxonomic Concept Transfer Schema; Taxonomic Names Subgroup 2006) or SDD (Structured Descriptive Data; Structure of Descriptive Data (SDD) Subgroup 2006) are expressed by an XML schema covering a formal data model. Other standards, as Floristic Regions of the World (Takhtajan 1986), or

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Vocabulary Maintenance Standard (VMS; Vocabulary Maintenance Specification Task Group 2017) concern vocabularies or a collection of standardized terms. The Plant Occurrence and Status Scheme (POSS; World Conservation Monitoring Centre 1995) provides both, a list of accepted terms, and a data model (list of fields). In case of morpho-anatomical data describing taxa or specimens, TDWG offers two standards: DELTA (DEscription Language for TAxonomy, Dallwitz 2006) and SDD (Structured Descriptive Data, Hagedorn 2007).

In order to further the discussion on morphological description data sharing, we would like to clarify what is meant by the term standard. We'll be looking at the concepts of guidelines, rules, defined format, referential list of terms, data schema, model, metamodel, protocols, which are all terms linked to this notion of standard and FAIR principles. Perhaps this reflection will lead us to propose criteria for better classifying TDWG standards.

Keywords

model, metamodel, format, data schema, controlled terms

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Conflicts of interest

The authors have declared that no competing interests exist.

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